Carbon Nanostructures-based aqueous bioinks

J. M. González-Domínguez,[1]* M. A. Álvarez,[1] A. Baigorri,[1] A. Ansón-Casaos,[1] G. Huet,[2] C. Hadad,[2] A. Nguyen Van Lier,[2] J. E. García-Bordejé,[1] A. M. Benito,[1] W. K. Maser[1]

1) Group of Carbon Nanostructures and Nanotechnology, Instituto de Carboquímica ICB-CSIC, C/Miguel Luesma Castán 4, 50018, Zaragoza, Spain
2) Labroatory LG2A, Chemistry Department, Université de Picardie Jules Verne, Amiens, France.

In the present work, the most recent progress in our laboratories will be presented, regarding the synthesis, characterization and applications of conductive inks made with carbon nanostructures (carbon nanotubes and graphene derivatives). Our main approach is to develop aqueous systems, capable of acting as precursors of conductive thin films, under a sustainability scope, by employing 'green' nanomaterials as dispersing agents coming from renewable sources. The main focuses are cellulose or chitin nanocrystals, and silk fibroin, which are able to generate stable aqueous bioinks in combination with carbon nanomaterials and several processing techniques (namely, dispersion, centrifugation or autoclave treatments). The processing, characterization and use of these inks will be discussed, as well as some application aspects in the energy and biomedicine fields.